

D. REMARKS AND ARGUMENTS**1. Amendments to the Specification**

- (a) Paragraph [0022] has been amended to capitalize in its entirety the reference to HME ENERGIZER,® in response to the Examiner's corresponding remarks in ¶4 of the non-final Office Action dated January 20, 2006.
- (b) Paragraphs [0026] and [0038] have been amended to correct obvious spelling errors.
- (c) Paragraph [0043] has been amended to capitalize the references to DRILLSOL® and SHELLSOL,® in response to the Examiner's corresponding remarks in ¶4 of the Office Action.
- (d) As well, paragraph [0043] has been amended to introduce descriptive generic terminology with respect to the products HT-40,® DRILLSOL,® and SHELLSOL,® in response to the Examiner's corresponding remarks in ¶5 of the Office Action. For the Examiner's information in this regard, Applicants enclose excerpts from manufacturers' reference materials relating to HT-40,® DRILLSOL,® and SHELLSOL,® said materials having formed the basis for the generic terminology introduced into paragraph [0043].

2. Amendments to the Claims

- (a) Claims 1, 3-26, and 34-40 have been cancelled in view of the election noted in ¶3 of the Office Action (said election being hereby affirmed by Applicants). The cancellation of these claims is without prejudice to the Applicants' right to pursue patent protection for the subject matter of the cancelled claims by way of one or more continuing applications.
- (b) Claim 2 was previously cancelled by way of a preliminary amendment.
- (c) Claim 27 has been amended to narrow the range of surfactant HLB numbers.
- (d) Claim 31 has been amended to match the wording of the term "carrier oil having solvent properties" as defined in paragraph [0027] of the specification. Applicants submit that the term "carrier oil" in Claim 31 prior to this amendment would have been clearly

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understood accordingly, and the current amendment is made solely for purposes of greater certainty in this regard.

(e) New Claim 41 is a Markush claim, substantively corresponding to deleted Claim 9 but in the context of a process claim.

3. **No New Matter**

It is submitted that the present amendments introduce no new matter into the application. All subject matter contained in the application, as amended hereby, was expressly described in or is reasonably inferable from the originally-filed specification, claims, abstract, and drawings.

4. **Claim Rejections Under 35 U.S.C. 102(b)**

In ¶7 of the non-final Office Action dated January 20, 2006, the Examiner rejected Claims 27-33 as being anticipated by USPN 2,288,857 (Subkow). Applicants respectfully traverse this rejection based on the observations and arguments which follow.

It is fundamental that a patent claim will be anticipated by a prior art reference only if the reference discloses each and every element of the claim, as such elements would be understood by a person of ordinary skill in the art (having regard to the specification), and arranged as in the claim. In the Applicants' submission, Subkow does not meet this threshold test, for reasons including but not necessarily limited to the following:

(a) Claim 27 (from which all other currently-pending claims depend) is directed to "a process for making an emulsified *drilling fluid*[]" Subkow does not teach or suggest the production of a drilling fluid of any kind. Indeed, the process of Subkow is directed to operations conducted *after* a well has been drilled into a subsurface formation, not to operations relating to the drilling of the well (which is of course the phase of operations during which a drilling fluid would be used). Subkow is directed to a process for producing *petroleum* from a subsurface formation, after wells have been drilled thereinto, whereas the present invention is directed to a process for producing a *drilling fluid* for use during the drilling of the wells. Furthermore, it is inherently necessary for operation of the Subkow process to have at least two wells (one or more injection wells and one or

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more collection/production wells), whereas the process claimed in the present application is operable in association with a single well.

- (b) Claim 27 recites the step of “providing a primary *drilling fluid* comprising an aqueous liquid, *a viscosity agent*, and one or more surfactants having HLB numbers equal to or greater than approximately 7[.]” Applicants submit that the solution used in the Subkow process is not the same as (or analogous to) the “primary drilling fluid” of Claim 27, in that the solution described in Subkow would not be understood by persons skilled in the art as being a drilling fluid of any kind. Having regard to the specification of the present application (not to mention common understandings in the art), a “drilling fluid” must be interpreted as a fluid or slurry which, in addition to other properties it may have, has sufficient viscosity to transport cuttings out of a borehole. This property is inherently antithetical to the solution used in the Subkow process. The essence of Subkow is a process whereby an aqueous solution is forced under pressure through an undisturbed subsurface formation to emulsify bitumen from the formation *in situ*. It is clearly desirable for the Subkow solution to be of the lowest viscosity possible, in order to maximize the rate and extent of penetration through subsurface formations, particularly in formations having low permeability. On this basis, Applicant submits that it is an error to construe the “primary drilling fluid” of Claim 27 as reading on the aqueous solution taught by Subkow.
- (c) The immediately preceding point is further reinforced by the fact that, so far as the Applicants have been able to discern, Subkow does not contain any reference to the use of viscosity agents. This observation in itself is sufficient to rebut the rejection for anticipation, since a viscosity agent is recited as a constituent of the primary drilling fluid of Claim 27.
- (d) Even if (for the sake of argument only) the “primary drilling fluid” of Claim 27 could properly be considered as reading on the aqueous solution of Subkow, the process in which the Subkow solution is used is significantly different from the process of Claim 27. As summarized by the Examiner in ¶7 of the Office Action, Subkow discloses a process for emulsifying bitumen from an undisturbed subsurface formation *in situ*. Claim 27 calls for “mixing the primary drilling fluid with cuttings produced by drilling through oil

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sand formations containing oil or bitumen[.]” It is clear without need for detailed explanation that forcing a solution through an undisturbed subsurface formation is distinctively different from mixing a solution with oil sand cuttings, which by definition are “disturbed” and not *in situ*.

- (e) Applicants acknowledge that Subkow refers to an alternative processes whereby oil sand that has been mined and brought to the surface “may be comminuted and heated directly with the aqueous solution and agitated therewith to effect emulsification of the bitumen” or “commingled prior to agitation with the aqueous solution with a hydrocarbon solvent[.]” It is arguable (although Applicants do not concede the point) that mined oil sand is equivalent to “cuttings produced by drilling through oil sand formations”. However, even if that proposition were to be accepted, it would be insufficient to establish that said alternative processes of Subkow anticipate Claim 27 of the present application. One of the alternative processes of Subkow calls for both comminution and heating of the mined oil sand (*with* the aqueous solution), and the second alternative process calls for mixing of the mined oil sand with a hydrocarbon solvent (*prior to* agitation with the aqueous solution). Claim 27 does not require comminution or heating of the oil sand cuttings, nor does it require mixing of the cuttings with a solvent (*prior to* exposure the primary drilling fluid or otherwise).
- (f) Moreover, the alternative processes of Subkow are defined as being carried out above ground, on materials that have been brought to the surface. This observation makes it clear that Claim 28 in particular is not anticipated by Subkow, since in Claim 28 the mixing of the primary drilling fluid with the cuttings is carried out below ground (i.e., in the wellbore). This submission should not be interpreted as in any way conceding that the fact that mixing occurs in the wellbore is essential to the allowability of Claim 28; it continues to be the Applicants’ position that Claim 27 is allowable, for one or more of the reasons presented above, and that Claim 28 would therefore be allowable in any event by virtue of its dependency from Claim 27.
- (g) Although the Applicants maintain that Claim 27 is allowable as originally filed, Claim 27 has been amended to limit the surfactants’ HLB numbers to a range from approximately 7 to approximately 13. This amendment is made in order to distinguish the claimed

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process over the prior art, in view of the Examiner's observation that Subkow discloses the use of sodium oleate, which has an HLB number of 18. This amendment is made to expedite allowance of the claims currently pending, and is without prejudice to the Applicants' right to pursue patent protection for processes and drilling fluid formulations using surfactants having HLB numbers not so limited in upper range, by way of one or more continuing applications.

On the basis of the foregoing remarks and arguments, Applicants respectfully submit that independent Claim 27 as currently amended is allowable. It follows that Claims 28-33 and Claim 41 are allowable as well, by virtue of their dependency from Claim 27.

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E. CONCLUDING REMARKS

Applicants respectfully submit that the amendments presented herein have fully addressed all issues raised in the Non-Final Action dated January 20, 2006, and that the application will be in condition for allowance upon entry of the amendments. Accordingly, Applicants request timely issuance of a Notice of Allowance.

Respectfully submitted by:



Donald V. Tomkins
Agent for the Applicants
Registration No. 48,206
Customer No. 31209

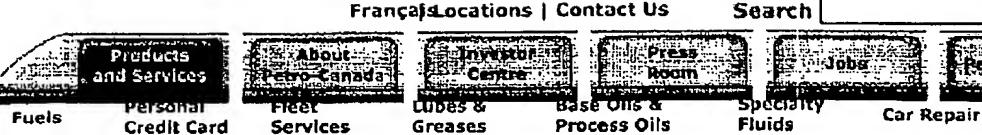
TOMKINS LAW OFFICE
Suite 740, 10150 - 100 Street
Edmonton, Alberta, CANADA
T5J 0P6

Telephone: (780) 424-2200
Facsimile: (780) 424-2205

E-mail: dtomkins@tomkinslaw.ca

Enclosures

1. Petro-Canada website information re "PureDrill HT-40" (1 page);
2. Enerchem website information re "Drillsol" (2 pages); and
3. Shell Chemicals website information re "Shellsol" (2 pages).


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PureDrill HT-40

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Monday Apr 17th, 2006



Enerchem Products

Through its production facilities and laboratory, Enerchem International Inc. manufactures 18 product lines encompassing over 300 oil and gas based formulations including corrosion inhibitors, demulsifiers, paraffin and asphaltene products. In addition to its product base of specialty chemicals and solvents, the Company's proprietary product line has been expanded to include hydrocarbon based frac and drilling fluids with brand names known in the oil and gas industry as "Fracsol" and "Drillsol", respectively. The Fracsol and Drillsol fluids were designed with the safety of rig workers and of the environment in mind.

Enerchem has developed a strong competitive advantage with its asphaltene dispersant product line as a result of its extensive research and development, and experience with the application of these products. This product line is used to remove and control asphaltene deposits that plug pipelines and contaminate process fluids in gas producing systems.

Asphaltene Dispersants

During production and transport, the crude oil and gas can deposit asphaltenes and waxes down hole, in the tubing and flow lines, and in production vessels. Asphaltene dispersants help reduce and eliminate asphaltene, bituminous and paraffinic deposits from fouling production equipment.

Bacteria Control Products

A certain amount of water is always found in hydrocarbons and additional water can come from condensation in storage tanks and during tank filling. The water normally separates out and remains at the bottom of the tank in direct contact with the metal surface. Under the right conditions, micro-organisms can multiply in stagnant areas and contribute to an increase in the amount of sediment in the tank. The by-products of the micro-biological degradation causes corrosion of metal surfaces. Enerchem's bacteria control products help reduce and eliminate such problems.

Cleaners / Degreasers

Enerchem manufactures a variety of heavy-duty degreasers and cleaners capable of removing heavy grease and soils, both organic and inorganic, from drilling rigs, engines and other types of machinery and

lease equipment.

Corrosion Inhibitors

Acid gases, such as carbon dioxide and hydrogen sulfide, are present in the produced water, and are corrosive to oil and gas production equipment. Enerchem's corrosion inhibitors are formulated to inhibit corrosion caused by oil field brines, organic acids, carbon dioxide and hydrogen sulfide.

Defoamers / Antifoamers

Defoamers / Antifoamers are used to stop or control foaming problems that occur either naturally or as a result of a treating program. Enerchem's defoamers / antifoamers are designed to prevent and to control foaming problems encountered in oil and gas production systems.

Demulsifiers

Most of the petroleum being produced is accompanied by water, and this water is often dispersed throughout the crude, forming an emulsion. Demulsifiers are additives designed to separate the water from the oil. By breaking emulsions in the system, the viscosity of oil will be greatly reduced, which will decrease pressure in flowlines and will allow increased production rates. Enerchem's demulsifiers are specifically formulated to meet all of the requirements required to break oil emulsions - dry oil and clean water.

Drilling Fluids

Drilling mud is a special mixture of clay, water, and chemical additives pumped downhole through the drill pipe and drill bit. The drilling mud cools the rapidly rotating bit, lubricates the drill pipe as it turns in the well-bore, carries rock cuttings to the surface, and serves as a plaster to prevent the wall of the bore-hole from crumbling or collapsing. Oil based drilling muds result in greater hole stability and have significant applications in deeper wells where shale sloughing is a problem. Enerchem carries an oil based drilling fluid known as "Drillsol". Drillsol boasts a flash point greater than 85° centigrade, has a low odor, and has less than 50 PPM aromatic content. Enerchem's drilling fluid was designed with the safety of rig workers and the environment in mind. Drillsol meets the specifications required for the product to be biodegradable, which allows for cuttings to be disposed of at significant savings to clients.



Foamers

Foamers are used to suspend air, nitrogen, carbon dioxide or natural gas in the aqueous phase of a fracturing, acidizing, gelled acid stimulation treatment, or to lift production liquids from gas wells. Enerchem's foamers are formulated to foam the specific fluid.



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Product/grade	Africa	Americas	Asia Pacific	Europe
SHELLSOL TC	n/a	21kb	n/a	n/a
SHELLSOL TD	28kb	n/a	28kb	27kb
SHELLSOL QMS	n/a	58kb	n/a	n/a
SHELLSOL T	29kb	n/a	29kb	27kb
SHELLSOL TK	n/a	n/a	17kb	n/a
SHELLSOL TM	n/a	n/a	17kb	n/a



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SHELLSOL TC

SHELLSOL TC is a domestically produced high purity isoparaffinic hydrocarbon possessing quick-dry properties. The extremely low olefin and aromatic content make it well suited where low reactivity and low odour are essential.

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SHELLSOL TD

SHELLSOL TD is a faster evaporating hydrocarbon solvent

that consists essentially of Isoparaffinic components. The high degree of general refining makes this solvent low in impurities such as sulphur, benzene and aromatics. The selected feedstock from which SHELLSOL TD is synthesised gives this product its characteristic very low odour, high auto ignition temperature and high stability.

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SHELLSOL OMS

SHELLSOL OMS is an isoparaffinic solvent which has been synthesised from selected hydrocarbons under conditions that exclude virtually all odour-producing fractions. The product is consequently highly stable and retains its virtually odourless quality under normal conditions and extended storage.

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SHELLSOL T

SHELLSOL T is an isoparaffinic hydrocarbon solvent with a characteristic low odour.

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SHELLSOL TK

SHELLSOL TK is a narrow cut, medium evaporating hydrocarbon solvent that consists essentially of Isoparaffinic components. The high degree of general refining makes this solvent low in impurities such as sulphur, benzene and aromatics. The selected feedstock from which SHELLSOL TK is synthesised gives this product its characteristic very low odour, high auto ignition temperature and high stability. The Hazardous Air Pollutants content of SHELLSOL TK is less than 1%wt.

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SHELLSOL TM

SHELLSOL TM is a higher flash, slower evaporating hydrocarbon solvent that consists essentially of Isoparaffinic components. The high degree of general refining makes this solvent low in impurities such as sulphur and aromatics. The selected feedstock from which SHELLSOL TM is synthesised gives this product its characteristic very low odour, high auto ignition temperature and high stability. The Hazardous Air Pollutants content of SHELLSOL TM is less than 1%wt.

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